

Non-Isothermal Corrosion and Oxidation



Project Lead

Albany Research Center
Albany, OR

Description

The objective is to determine the effects of thermal gradients and heat fluxes on the corrosion behavior of metals commonly used in high-temperature components of fossil energy power plants. The heat-flux theory of oxidation (Glover 1980 and Malik 1990) will be expanded and applied first to the oxidation of cobalt above 800 °C (to verify the theory) and then to materials closer to importance to fossil energy production. An example of the later is nickel with small additions of chromium, which brings into the model doping effects on the defect structure of the oxide. In parallel to these efforts in non-isothermal oxidation with respect to position (temperature gradients and heat fluxes), a facility to test materials in non-isothermal conditions with respect to time (thermal cycling) will be built. This will allow thermal cycling tests in air plus water vapor to be conducted.

Product Support Areas

Gasification Technologies	Combustion Technologies	Sequestration	Environmental & Water Resources	Advanced Turbine & Engines	Fuel Cells
					



Project:
Code: AMP-004

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